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before the
Committee on Energy and Natural Resources
United States Senate

July 13, 2004

Good morning Mr. Chairman and members of the Committee. It is a pleasure to be here today to discuss the progress we are making toward restoring nuclear power as a vibrant and realistic option to meet this Nation's future energy needs. Building on industry's success with the efficient and safe operation of current nuclear power plants, the Bush Administration is looking to both pave the way for deployment of new plants in the next few years and point the way toward a new generation of nuclear energy for the future.

First, Mr. Chairman, I would like to thank you for this Committee's leadership. Even before President Bush took office in 2001, you, Senator Craig, Senator Bingaman and others were working on the issues facing nuclear energy in this country--often during a period when some analysts were predicting the end of nuclear energy in the United States. This committee's efforts provided a solid programmatic and policy foundation that has made the progress we are seeing today possible. While, as we all know, there is still much to be done, I believe that it is important to recognize the success that we have seen in the nuclear field over the last few years.

It is important to recall that during the last decade, things looked very bleak for nuclear power in the United States. The door seemed to close on the future of nuclear power early in the decade as the Shoreham nuclear power plant on Long Island, New York was finally closed in February 1992 after a long, contentious fight. That event showed that even a completed plant in which $5.5 billion had been invested, which had been licensed to operate by the Nuclear Regulatory Commission, which had a virtual twin that had been operating in Connecticut for two decades—even this plant could fail to reach commercial operation.

The closure of Shoreham seemed to herald a stream of bad news for nuclear power. The following year saw the termination of nearly all the Department of Energy's nuclear energy research and development activities. Work on programs such as the Integral Fast Reactor, the Gas-Turbine Modular Helium Reactor, and the SP-100 space reactor were all brought to a rapid end. The number of students taking up nuclear engineering in the United States was in free-fall—dropping from about 1,500 before Shoreham to less than a third that level by 1997.

Deregulation of the electric utility industry and the advent of the competitive electricity market led many analysts—and more than a few members of Congress—to predict that nuclear power plants would become "stranded costs" that would force their owners to close them prematurely and replace them with smaller plants fueled by demonstrably cheap and apparently infinite supplies of natural gas.

The Yucca Mountain project was stuck in neutral. While taking in hundreds of millions of dollars of ratepayer money each year, the program, delayed by litigation and funding shortfalls, was making little progress towards its goal of accepting commercial and defense high-level nuclear waste by 2010.

In this environment, the nadir came in fiscal year 1998. In that year, the Department's civilian nuclear energy research funding fell to zero.

At the time, I'm sure that many saw this as an embarrassing and harmful collapse in what had once been a world-leading research program. But many of the members of this Committee provided support and encouragement that made it possible to begin the long process of rebuilding the Federal nuclear energy program.

At the same time, industry made tremendous progress in operating U.S. nuclear power plants more efficiently. After trailing behind nuclear programs in other countries for many years in terms of efficient operation, U.S. operators responded vigorously to the challenge of deregulation with better management and a new focus on the efficient and reliable operation of U.S. plants. U.S. capacity factors were less than 70% when the 1990s began and topped 90% only ten years later, leading the world in the safe and efficient operation of nuclear power plants. Moreover, the Nuclear Regulatory Commission has acted quickly and effectively to enable utilities to "uprate" their plants and extend operating licenses for an additional 20 years. One result – which is very different from the picture that some analysts painted only a few years ago – is that essentially all nuclear power plants in the country are expected to apply for license renewals.

The key event in the revival came when the President unveiled the *National Energy Policy* (NEP). For the first time since the Department of Energy was formed in 1977, the Government issued a clear policy statement encouraging the expansion of nuclear power to meet our future energy needs. With the recommendations of the NEP guiding our program and policy decisions, we were able to focus the Department's nuclear energy program and enhance its core mission of nuclear energy research. We started important new initiatives and Secretary Abraham authorized the formal creation of the Generation IV International Forum, the model for many of the international efforts the Department is pursuing today. Most recently, we set off to establish a premier laboratory for nuclear energy research and development, the Idaho National Laboratory.

In parallel with this progress, Secretary Abraham, citing the sound scientific work conducted by the program since its inception, recommended and the President accepted the Yucca Mountain site as the best place to build the Nation's high-level waste repository. This step cleared a major roadblock in enabling a vibrant U.S. nuclear power program to move forward. With Congress's strong votes in support of the site selection, and the Department's demonstrated progress toward meeting our goal to establish a geologic repository by 2010, industry saw clearly that the nuclear power option was truly back on the table.

This brings us to today. We have much work ahead of us and I would like to discuss with you today the programs, strategies, and policies that are advancing our goal to assure a strong, long-term role for nuclear energy in helping this country to meet its energy and environmental goals.

Encouraging Generation III+

We believe that state-of-the art nuclear power plants developed by U.S. and overseas suppliers can and should play an important role in meeting U.S. energy requirements in the next decade. It is clear that U.S. demand for electricity will continue to increase. Despite the fact that the U.S. economy has become increasingly efficient in its use of energy, growth in energy use and growth in economic activity remain linked. The Energy Information Administration projects that assuming modest economic growth of three percent annually through 2025, U.S. energy use will grow by about 1.5 percent each year. While this does not sound like a big number, this means the U.S. will need to build over 335,000 megawatts of new capacity during that period to meet the demand—and this does not include the plants we will need to build to replace older, retiring plants.

Industry has generally anticipated that most of these new plants would be efficient gas-fired units similar to those that comprise the vast majority of the power plants built over the last decade. Use of natural gas for electric power generation increased by 85% from 1990 to 2002. It is projected to nearly double by 2025--from 685 BkWh today to 1,300 BkWh. This dependency on a single fuel type for new generation represents a potential vulnerability in our energy security.

Nuclear power should be a key part of the U.S. electric generating portfolio. Advanced, Generation III+ light water reactor-based plants are on the market today and more will be available from U.S. and foreign suppliers in the coming years. Advanced Boiling Water Reactors (ABWRs) based on U.S. technology are being built and operated today in Japan and other countries with impressive results. Finland will build a large French-supplied European Pressurized Reactor (EPR) plant to meet the needs of its growing industries. China is planning to build 30 new plants by 2020 to meet its rapidly growing energy requirements.

Under the auspices of the Department's Nuclear Power 2010 program, we are working with industry to pave the way for an order to be placed for a new U.S. nuclear power plant in the next few years. The Nuclear Power 2010 program is designed to work with industry to identify sites for new nuclear power plants, develop and bring to market advanced nuclear plant technologies, evaluate the business case for building new nuclear power plants, and demonstrate untested regulatory processes.

We have seen important success in this program already, with three U.S. utilities partnering with the Department to test the Nuclear Regulatory Commission's Early Site Permit process. Under this process, utilities can work with the NRC to evaluate potential sites for new plants and, if the sites pass regulatory scrutiny, the utilities can obtain permits from the Commission that would ease the licensing of a plant at an approved site in the future.

Clearly, there is great value to such a process. However, like many of the advanced NRC licensing activities that came into force after the Energy Policy Act of 1992, this procedure has never been tested. Under our Nuclear Power 2010, the Department is working with three of the Nation's major utilities--Dominion Resources, Entergy, and Exelon--to evaluate sites in Virginia, Mississippi, and Illinois. This effort has already resulted in applications by these utilities to the Nuclear Regulatory Commission. We anticipate that the first Early Site Permits ever issued will emerge from this work in 2006.

The Department has also funded several important studies under the Nuclear Power 2010 program. For example, we have launched a cost-shared study with the petrochemical industry to explore the benefits to industrial users of natural gas of building a new nuclear power plant in the Southwest. Most important, in 2002 we completed an independent business case analysis that was based on comprehensive interviews and workshops with industry leaders and Wall Street experts. The resulting report, *Business Case for New Nuclear Power Plants in the United States*, provided an authoritative account of the business and financial issues facing utilities that are considering the construction of new plants.

The *Business Case* study found that there are two primary obstacles to building new plants in the United States:

1. The difficulty in obtaining up-front financing for a large project that requires five or more years to complete; and
2. The uncertainty in the untested licensing process.

The first issue reflects the changes in the market since the last plants were built. In the 1970s, a utility deciding to build a nuclear plant simply placed the order and paid for all the necessary design and engineering work required for the project. Costs were generally passed on to ratepayers as part of the cost needed to assure a long-term electricity supply. Today, the situation is very different. Because utilities are unable simply to pass costs to ratepayers in the competitive markets in which many now operate, they are unwilling to absorb the very expensive up-front design and engineering work required for new plant technologies to be brought to market. Further, because of the scrutiny utilities face from investors and credit rating organizations, they are very reluctant to make large capital investments of any kind—especially if these investments have a multi-year long impact on earnings.

The second issue reflects the negative experiences utilities had in the late 1970s and early 1980s. Few utilities are interested in making investments in billions of dollars in a new power plant if they can't be certain that they can operate the plant on a predictable schedule—or, in a worst case, if there is a prospect that they won't be able to operate at all. The legacy of Shoreham looms large in this thinking.

It is in this context that we designed the next step in the Nuclear Power 2010 program. On November 20, 2003, the Department challenged the utility industry to organize itself to evolve from the "study and evaluate" stage to consider specific projects that could result in the construction of new nuclear power plants. We asked the electric utilities to form teams that could create solid plans to demonstrate the major component of NRC's licensing regime that remains untested: the "one-step" licensing process, which is formally known as the combined construction/operating license (COL) process.

By receiving the authorization to construct and the authorization to operate at essentially the same time, a utility could build a new plant with a very high degree of confidence that a well-executed project will allow a new plant to go on-line on schedule.

We have received three proposals from industry thus far. We have awarded cost-shared funding to one consortium led by the Tennessee Valley Authority to verify vendors' cost and schedule estimates to build an ABWR at the utility's Bellefonte site near Hollywood, Alabama. The results of this work will be available in April 2005 and will be used to allow the TVA Board to make an informed decision about the future of this concept.

Two other consortia have also made proposals. One, led by Dominion Resources, would demonstrate the COL process using technology from Atomic Energy of Canada, Limited (AECL); the other is led by a large consortium of 9 utilities that plans to consider two technologies—the Westinghouse AP-1000 and the General Electric Enhanced Simplified Boiling Water Reactor (ESBWR). Since this procurement action is still open, I am not at liberty to discuss the details of the industry proposals.

Yucca Mountain: Continuing the Progress

If we are to see our Nuclear Power 2010 efforts develop into actual nuclear power plant projects, continued progress toward establishing the Nation's high-level waste repository at the Yucca Mountain, Nevada site is absolutely essential.

This Administration has made a strong commitment to resolving the nuclear waste challenge and making the construction of a repository achievable. We have followed through on that twenty-year commitment with important actions, such as the 2002 recommendation of the Yucca Mountain site and support for the enactment of the Congressional joint resolution that enabled the Department to move toward licensing the repository. This decision allows the Nuclear Regulatory Commission – an independent regulatory body implementing an extensive set of regulations – to review the science during a rigorous three-to-four-year licensing process, which will involve many other parties and will be open to public scrutiny.

We are moving ahead with developing a high-quality license application for submittal to the Nuclear Regulatory Commission at the end of this year. The application is built on over 20 years of sound science, making Yucca Mountain the most exhaustively studied project of its kind in the world. Since the Nuclear Waste Policy Act of 1982 was enacted, five Presidents have overseen work on a geologic repository for spent nuclear fuel and high-level waste. This Administration's policy has been to complete the science, to fulfill all the technical and institutional requirements laid out in the Nuclear Waste Policy Act, and begin construction if authorized by the NRC.

At the end of June, the Department fulfilled a prerequisite for submittal of the license application, certifying the availability of approximately 1.2 million documents, totaling some 5.6 million pages, submitted by the Department for the Nuclear Regulatory Commission's Licensing Support Network. The Licensing Support Network is an electronic, Internet-based discovery system that will allow the Nuclear Regulatory Commission, the public, and parties to the licensing proceeding electronic access to the results of scientific studies and other information used to develop the license application.

This system is the first of its kind, and its development is providing lessons learned for many of the parties involved. We are working out technical issues and ensuring that we do not disclose individuals' privacy information. It is important to note that the Licensing Support Network is not the License Application – the document collection supports the License Application, which will provide context and present the substantive conclusions drawn from these documents.

We are still on track toward submitting a license application in December of this year, and opening a repository and beginning waste acceptance in 2010. The President's Fiscal Year 2005 budget reflected the funding needed to maintain these longstanding goals, and, in parallel, the Department offered a legislative proposal to resolve a funding problem that has burdened the Program for many years. It is extremely important to put in place a long-term funding solution if 2010 is to be a reality, and we look forward to working with the Congress further to achieve this objective.

Technology Options for the Long-Term Fuel Cycle

Our Advanced Fuel Cycle Initiative (AFCI) is designed to develop a better, more efficient, and more proliferation-resistant nuclear fuel cycle that could support an expanding role for nuclear power in the United States. AFCI technologies could provide important benefits such as enhancing national security by lowering proliferation risk through the reduction of inventories of commercially-generated plutonium contained in spent fuel. AFCI will also enhance national energy security by recovering the significant energy value contained in spent nuclear fuel--the 44,000 metric tones of spent nuclear fuel currently stored at nuclear power plant sites across the country that contain the energy equivalent of over 6 billion barrels of oil, or about two full years of U.S. oil imports.

One possible key to realizing these benefits is the development of advanced separation technologies. These are technologies that can remove the useful components of spent nuclear fuel from the materials that must be disposed as waste. This is not a new field of study. The United States developed PUREX technology during the Manhattan Project to provide plutonium for use in atomic weapons. PUREX technology is used today in Europe to reprocess spent fuel.

However, while commercial reprocessors have done much to improve existing separation technology, it remains too expensive, generates too much high-level waste, and separates plutonium that presents a long-term proliferation risk. We believe it is the wrong technology for the future and the *National Energy Policy* reflects this. We have, instead, focused on two technologies that show great promise.

Through the AFCI program, our scientists have invented a technology known as Uranium Extraction Plus (UREX+), an advanced aqueous process that can be used to remove the uranium and a combination of plutonium and selected minor actinides from spent nuclear fuel. It is our hope that this technology will prove proliferation-resistant enough to provide the benefits of recycling spent fuel without increasing proliferation risks.

Another technology, pyroprocessing, was investigated during the Integral Fast Reactor program of the 1980s. In its current form, it is proving to be a highly efficient, proliferation-resistant, non-aqueous approach to separate the actinides in spent fuel from fission products. The AFCI pyroprocessing activities support the ultimate reduction of the radiotoxicity of nuclear waste through the transmutation of minor actinides in future Generation IV fast spectrum reactors or in dedicated transmuter devices. In addition, these activities provide the means for closure of the fuel cycle for Generation IV fast reactors.

The AFCI program is preparing for its next steps—larger-scale demonstration of key technologies and development and testing of advanced transmutation fuels. If successful, this research will reduce the toxicity of nuclear waste to the point that it will decay to the same toxicity as natural uranium ore in less than 1,000 years—instead of the 300,000 years required without AFCI technology.

Moving Forward with Generation IV: NGNP

Current, state-of-the-art Generation III+ technologies such as AECL's ACR-700, the Westinghouse AP-1000, and the GE ESBWR could serve the future market for nuclear energy well. Our Nuclear Power 2010 program is designed to help utilities decide among these technologies and to place new plant orders. While utilities are positively engaged in this effort, we cannot ignore the fact that ordering a new nuclear plant remains a tough decision for any utility operating in a competitive market. As we look to the longer-term future, it is clear that nuclear power must find a way to deal with the structural issues that potentially limit its expansion.

Again, we believe advances in technology can provide a path-forward. To allow nuclear to compete more effectively with other energy options, it will be necessary for the utility decision to build a nuclear unit to be a matter of fuel mix rather than an issue of cost and risk. In other words, technology needs to provide a nuclear plant that is a superior business choice to natural gas units or other options in a direct, head-on competition. Such a plant must be capable of coming on-line in a time frame similar to a gas plant, with no more financial risk. Such a plant must be licensed and regulated under a regime that recognizes its safety advantages. Such a plant must be highly flexible and able to serve the needs of the market as they evolve.

This is exactly the thinking that led to the formation of the Generation IV International Forum, or GIF. That group, in coordination with the Nuclear Energy Research Advisory Committee (NERAC), led the evaluation of over 100 different nuclear energy concepts by over 100 expert scientists and engineers from over a dozen countries. After a complex, carefully managed two year process, the GIF concluded that six technology concepts held the most promise for the future and the GIF member countries agreed to establish an international framework to allow all countries to work on the technologies of greatest interest to them in direct partnership with other member countries.

Today, GIF is comprised of ten countries and EURATOM, working together to advance next-generation nuclear energy technologies. Working with brilliant engineers and scientists from all over the world, the GIF has selected six advanced nuclear energy technologies that it will pursue for the future use by nations all over the world. Under U.S. chairmanship, the GIF is at this time completing a multilateral agreement that will allow all GIF nations to share in this important work.

For our part, as we indicated in our report to Congress last year on the U.S. Generation IV program, the Department of Energy has selected one of the six technologies as its lead technology. This technology is now known as the Next Generation Nuclear Plant, or NGNP. The NGNP would be able to make both electricity and hydrogen at very high levels of efficiency; would be deployable in modules that will better fit the highly competitive, deregulated market environment in the United States; and would be extraordinarily safe, proliferation-resistant, and waste-minimizing.

The base concept of the NGNP is that of a very-high temperature gas-cooled reactor system coupled with an advanced, high-efficiency turbine generator and an even more advanced thermochemical hydrogen production system. We have very high expectations for this technology. As we indicated in our recent request for Expressions of Interest (EOI), we are interested in the eventual deployment of commercial plants that can generate electric power at a cost of less than 1.5 cents/kilowatt hour; produce hydrogen at a cost of less than $1.50/gallon-gasoline equivalent; and cost less than $1,000/kilowatt to construct with a goal of $500/kilowatt.

These characteristics are obviously challenging. But, because of the work we have completed thus far in our work on Generation IV nuclear power systems, we believe these characteristics are achievable. It is very possible that this type of nuclear plant could be brought to market by the 2020s and serve the world's long-term needs for many decades thereafter.

The Department is working with its international partners to define the research and development activities necessary to advance this concept. We have received comments from the U.S. private sector on our NGNP strategy and have also received indications from several companies regarding their interest in serving as the Project Integrator. To be successful, such a technology must be flexible, safe, reliable, and consistent with the economic realities of the market.

Our EOI also noted that a management and funding option the Department is considering is to implement a cooperative agreement with a Project Integrator to pursue this technology. This entity would create the mechanisms needed to assure strong private sector and international participation in the project and also assure a solid private sector management approach to the selection of technologies and the construction project. This entity, with its eventual consortium partners, will be able to apply this technology to commercial projects in the U.S. and abroad. We also expect the Project Integrator to build any fuel fabrication or other facilities that will be needed to support commercial use of NGNP technology (though we may, as some potential applicants have already inquired, entertain proposals to build such facilities at the Idaho National Laboratory). The Consortium will also be responsible for obtaining an NRC license for the NGNP.

We believe that a strong role for the private sector in this program is essential to its success. Without private sector leadership, the NGNP will lack credibility with industry and it will be very difficult to bring this technology to commercial deployment. We have considerable confidence in the U.S. private sector to assemble the right technologies, the right players, and the right strategy to make NGNP technology a reality.

If we are successful in creating such a technology, we will transform the energy and environment future of the United States. We will not only assure a vibrant, long-term future for nuclear energy that will allow the Nation to benefit from nuclear energy's enviable environmental qualities, but we will expand its advantages from electricity production to fueling the Nation's vast transportation system. In doing so, we will enable the President's vision, as articulated in the National Hydrogen Fuel Initiative, to be realized far earlier than many thought possible.

Managing DOE's Nuclear Energy Agenda

The Department of Energy is well-equipped to pursue the research, development and demonstration of complex, advanced systems such as the NGNP because it has access to some of the best scientific and engineering talent in the world—at the DOE laboratories. Because of its roots in the Atomic Energy Commission, most of the Department's labs have excellent capabilities and expertise in various aspects of nuclear technology. The Department has established a program management structure that brings the best technical talent to bear on DOE's nuclear energy R&D programs, no matter where that talent may reside. In managing the Generation IV, AFCI, and Nuclear Hydrogen Initiative activities, for example, DOE has developed an integrated structure that designates key Laboratory personnel as "National Technical Directors" of specific technology areas. These individuals have the responsibility to coordinate work at the national labs with universities, industry, and the international community in areas that they have particular expertise.

We believe that there is a role for many of the labs in advancing our nuclear energy program objectives. I have met personally with the "Seven Lab" group to discuss their ideas on promoting a broad-based nuclear energy research program. And, as I told the senior lab staff at this morning's "Decision-Marker's Forum." We expect to rely on Argonne National Laboratory (with its unique expertise in reactor analysis, reactor safety, physics and computer codes); Oak Ridge National Laboratory (which has great expertise in materials and chemical processes); Pacific Northwest National Laboratory (with its international nuclear safety expertise); Lawrence Livermore National Laboratory (which leads in the consideration of the national security considerations of nuclear technology); Los Alamos National Laboratory (which has some the Department's finest advanced nuclear fuel technology capabilities); and Sandia National Laboratories (which has outstanding energy conversion, systems engineering, and nonproliferation expertise).

Obviously, however, the Idaho National Laboratory will play a central role. As you know, we have issued a request for proposals which will establish a new Management and Operations Contractor at the lab who will have the task of merging the lab operations of Argonne National Laboratory-West and Idaho National Engineering and Environmental Laboratory to create a new, multi-program national laboratory. The new lab will serve as what Secretary Abraham called the "command center" of a revived nuclear technology, education, and research enterprise in this country. We expect that the INL will form close and productive relationships with other national laboratories—particularly those where important, irreplaceable expertise and capabilities exist today.

The development of this new laboratory is a key objective of our Next Generation Nuclear Plant program. It is fair to note that the Department has two coequal purposes in pursuing the NGNP; one is to work with industry to develop and deploy a technology that would help us meet the Nation's long-term energy and environmental goals. The other is to initiate the ten-year effort to build the Idaho National Laboratory into the world's premier nuclear energy research laboratory.

Pursuant to the latter objective, the Department has developed a strategy that assures both a strong management role for the private sector and a major, well-defined role for the INL. In particular, we envision that the INL would have the following key responsibilities in the NGNP project:

- The INL would serve as the Department's lead laboratory and technology agent for the entire project. All of DOE's funding for the considerable research required for the NGNP project will go to the INL. I would expect that INL would coordinate tasks utilizing some of our other outstanding labs which play a significant role in nuclear research and development today.

- DOE's current approach is to maintain the National Hydrogen Fuel Initiative as a distinct program. The INL will conduct the hydrogen technology program and coordinate with the Integrator to eventually marry the NGNP with the hydrogen plant.

- The INL will provide the Integrator and the Consortium with technology support required for the project.

- The Department expects that the INL will also play a major role in the construction of the NGNP; it is our experience that first-of-a-kind components are fabricated at national laboratories.

- The INL will coordinate all educational activities connected with the project, most likely through the proposed Center for Advanced Energy Studies to be collocated with the INL.

- INL will serve as the primary point-of-contact on the relevant Generation IV International Forum "system steering committee" related to NGNP technology and coordinate any international government-to-government research and development work.

Beyond nuclear energy research, we envision the INL continuing to serve as a multi-program laboratory, with a broad and varied portfolio of work. We believe that a diverse scope of work activities would provide a sound intellectual basis for the lab and help attract the wide range of expert researchers and technologists from many disciplines that will be needed to allow us to reach our ambitious nuclear energy goals. In addition to its nuclear energy role, the request for proposals indicates that the new INL M&O contractor will:

- Consolidate at the INL the ability to fabricate, test and assemble plutonium-238 power systems needed for both national security and space exploration;

- Establish a world-class Center for Advanced Energy Studies in Idaho Falls, Idaho, in which the INL, Idaho universities and other regional and national universities cooperate to conduct on-site research, classroom instruction, technical conferences and other events;

- Be a lead science and technology provider in nuclear nonproliferation and counter proliferation activities, and play an increased role in developing science-based, technical solutions for protecting the country's critical infrastructure; and

- Research, develop, demonstrate and deploy technologies that improve the efficiency, cost effectiveness and environmental impacts of systems that generate, transmit, distribute and store electricity and fuels.

For the nuclear energy and other missions, we have asked the Nuclear Energy Research Advisory Committee to evaluate the assets in Idaho and to recommend to us improvements it believes we should make not just in facilities and equipment, but also in less tangible areas, such as personnel development and incentives and laboratory culture. We look forward to receiving their recommendations later this year.

Enhancing Nuclear Technology Education

Finally, Mr. Chairman, I think it is important that I highlight the progress we have made in reversing the decline in nuclear engineering in the United States. With significant support and encouragement from this body and your colleagues in the House of Representatives, we are now reversing the decline in undergraduate enrollments in this area of study that began in 1993 and continued through 1998. In 1998, the U.S. saw only around 500 students enrolled as nuclear engineers—down from almost 1,500 in 1992. After several years of focused effort, the United States now has over 1,300 students studying nuclear engineering. That number is set to increase further, as strong programs—such as at Purdue and Texas A&M, not to mention Idaho State University and the University of New Mexico — continue to grow and we see new programs start at schools such as South Carolina State University, the University of South Carolina, and the University of Nevada-Las Vegas.

The growth of nuclear energy in the United States is dependent on the preservation of the education and training infrastructure at universities. The research conducted using these reactors is critical to many national priorities. Currently, there are 27 operating university research reactors at 26 campuses in 20 states. These reactors are providing support for research in such diverse areas as medical isotopes, human health, life sciences, environmental protection, advanced materials, lasers, energy conversion and food irradiation.

The most exciting development in University Reactor Infrastructure and Education Assistance is the Innovations in Nuclear Infrastructure and Education (INIE) Program established in FY 2002. In FY 2003, two additional university consortia were awarded, bringing the total to six INIE grants, providing support to 24 universities in 19 states across the Nation. These consortia have demonstrated remarkable collaborative efforts and strong formation of strategic partnerships between universities, national laboratories, and industry. These partnerships have resulted in increased use of the university nuclear reactor research and training facilities, upgrading of facilities, increased support for students, and additional research opportunities for students, faculty and other interested researchers.

We plan to do even more to support nuclear technology education in the future. With the advent of the Idaho National Laboratory's proposed Center for Advanced Energy Studies, we expect that the lab will become a center point for strengthening nuclear education nationwide. We look forward to the opportunities this new Center will create for our efforts to maintain and enhance the Nation's nuclear education infrastructure.

Conclusion

Mr. Chairman, we are at a critical moment in deciding our energy future. As Secretary Abraham and you have said, "we need to get our energy house in order." We believe that task requires a strong contribution by nuclear energy well into this century. Ensuring this occurs is a formidable challenge. But we need to start now; the past three years has seen a dramatic change in terms of actions taken, increased industry interest, and a broader recognition of the benefits of nuclear energy. We look forward to working with you and this committee in resolving outstanding challenges and meeting these goals.